



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XC026]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys off of Coastal Virginia

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Virginia Electric and Power Company doing business as Dominion Energy Virginia (Dominion Energy) to incidentally harass marine mammals during marine site characterization surveys off of Virginia in support of the Coastal Virginia Offshore Wind Commercial (CVOW) Project.

DATES: This Authorization is effective from May 27, 2022 to May 26, 2023.

FOR FURTHER INFORMATION CONTACT: Leah Davis, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On September 30, 2021, NMFS received a request from Dominion Energy for an IHA to take marine mammals incidental to marine site characterization surveys off of Virginia. Dominion Energy submitted revised applications on December 3, 2021, January 21, 2022 and March 2, 2022 in response to comments from NMFS. The application was deemed adequate and complete on March 8, 2022. Dominion Energy’s request is for take of a small number of 14 species of marine mammals by Level B harassment only. Neither

Dominion Energy nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued IHAs to Dominion Energy for similar and related work in the same general area (85 FR 55415; September 8, 2020 (modified on December 17, 2020 (85 FR 81879) and April 22, 2021 (86 FR 21298)), 85 FR 30930; May 21, 2020, and 83 FR 39062; August 8, 2018). Dominion Energy complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHAs and information regarding their monitoring results may be found in the Estimated Take section.

Description of the Specified Activity

As part of its overall marine site characterization survey operations, Dominion Energy plans to conduct high-resolution geophysical (HRG) surveys in the Lease Area and along the Offshore Export Cable Corridor (OECC) off the coast of Virginia.

The purpose of the surveys is to locate and identify potential unexploded ordnance (UXO) in support of the Dominion Energy Coastal Virginia Offshore Wind Commercial Project. Underwater sound resulting from Dominion Energy's planned site characterization survey activities, specifically HRG surveys, has the potential to result in incidental take of marine mammals in the form of behavioral harassment.

Table 1 identifies the representative survey equipment with the expected potential to result in exposure of marine mammals and potentially result in take. The make and model of the listed geophysical equipment may vary depending on availability and the final equipment choices will vary depending on the final survey design, vessel availability, and survey contractor selection.

Table 1--Summary of Representative HRG Equipment

System	Representative Equipment ^a	Operating Frequency (kHz)	RMS Source Level (dB re 1 μ PA m)	Peak Source Level (dB re 1 μ PA m)	Primary Beam Width (degrees)	Pulse Duration (millisecond)
Multibeam Echosounder	R2Sonics 2026	170–450	191 ^b	221 ^b	0.45 x 0.45–1 x 1	0.015–1.115
Medium Penetration Seismic	Geo Marine Dual 400 Sparker 800J	0.3–1.2	203 ^c	212 ^c	Omnidirectional	0.5–0.8
	Applied Acoustics S-Boom (Triple Plate Boomer 1000J)	0.5–3.5	203 ^d	213 ^d	60 ^e	10

^a Make/model of equipment may vary depending on availability. Will be finalized as part of the survey preparations and contract negotiations with the survey contractor.

^b Reported by manufacturer.

^c Based on data from Crocker and Fratantonio (2016) for the Applied Acoustics Dura Spark.

^d Based on data from Crocker and Fratantonio (2016) for the Applied Acoustics S-Boom with CS.

^e The beam width was based on data from Crocker and Fratantonio (2016) for the Applied Acoustics S-Boom. dB re 1 μ Pa m – decibels referenced to 1 microPascal at 1 meter

Required mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Mitigation** and **Monitoring and Reporting**).

A detailed description of the planned survey is provided in the **Federal Register** notice for the proposed IHA (87 FR 19864; April 6, 2022). Since that time, no changes have been made to Dominion Energy’s planned survey activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Comments and Responses

A notice of NMFS' proposal to issue an IHA to Dominion Energy was published in the **Federal Register** on April 6, 2022 (87 FR 19864). That proposed notice described, in detail, Dominion Energy's activities, the marine mammal species that may be affected by the activities, and the anticipated effects on marine mammals. In that notice, we requested public input on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed IHA, and requested that interested persons submit relevant information, suggestions, and comments. This proposed notice was available for a 30-day public comment period.

NMFS received letters from Oceana and Southern Environmental Law Center (SELC) and one comment from a private citizen. Summaries of all substantive comments, and our responses to these comments, are provided here. Please see the comment letters, available online at: <https://www.fisheries.noaa.gov/action/incidental-take-authorization-dominion-energy-marine-site-characterization-surveys-coastal>, for full detail regarding the comments received.

Comment 1: Oceana made comments objecting to NMFS' renewal process regarding the extension of any one-year IHA with a truncated 15-day public comment period, and suggested an additional 30-day public comment period is necessary for any renewal request.

Response: NMFS' IHA renewal process meets all statutory requirements. In prior responses to comments about IHA renewals (e.g., 84 FR 52464; October 2, 2019 and 85 FR 53342, August 28, 2020), NMFS has explained how the renewal process, as implemented, is consistent with the statutory requirements contained in section 101(a)(5)(D) of the MMPA, and further, promotes NMFS' goals of improving conservation of marine mammals and increasing efficiency in the MMPA compliance process. Therefore, we intend to continue implementing the renewal process.

In particular, we emphasize that any Renewal IHA does have a 30-day public comment period, and in fact, each Renewal IHA is made available for a 45-day public comment period. The notice of the proposed IHA published in the **Federal Register** on April 6, 2022 (87 FR 19864) made clear that NMFS was seeking comment on the proposed IHA and the potential issuance of a renewal for this survey. As detailed in the **Federal Register** notice for the proposed IHA and on the agency's website, any renewal is limited to another year of identical or nearly identical activities in the same location or the same activities that were not completed within the 1-year period of the initial IHA. NMFS' analysis of the anticipated impacts on marine mammals caused by the applicant's activities covers both the Initial IHA period and the possibility of a one-year Renewal. Therefore a member of the public considering commenting on a proposed Initial IHA also knows exactly what activities (or subset of activities) would be included in a proposed Renewal IHA, the potential impacts of those activities, the maximum amount and type of take that could be caused by those activities, the mitigation and monitoring measures that would be required, and the basis for the agency's negligible impact determinations, least practicable adverse impact findings, small numbers findings, and (if applicable) the no unmitigable adverse impact on subsistence use finding -- all the information needed to provide complete and meaningful comments on a possible Renewal at the time of considering the proposed Initial IHA. Reviewers have the information needed to meaningfully comment on both the immediate proposed IHA and a possible 1-year renewal, should the IHA holder choose to request one.

While there would be additional documents submitted with a renewal request, for a qualifying renewal these would be limited to documentation that NMFS would make available and use to verify that the activities are identical to those in the initial IHA, are nearly identical such that the changes would have either no effect on impacts to marine mammals or decrease those impacts, or are a subset of activities already analyzed and

authorized but not completed under the initial IHA. NMFS would also need to confirm, among other things, that the activities would occur in the same location; involve the same species and stocks; provide for continuation of the same mitigation, monitoring, and reporting requirements; and that no new information has been received that would alter the prior analysis. The renewal request would also contain a preliminary monitoring report, in order to verify that effects from the activities do not indicate impacts of a scale or nature not previously analyzed. The additional 15-day public comment period, which includes NMFS' direct notice to anyone who commented on the proposed Initial IHA, provides the public an opportunity to review these few documents, provide any additional pertinent information and comment on whether they think the criteria for a renewal have been met. Between the initial 30-day comment period on these same activities and the additional 15 days, the total comment period for a renewal is 45 days.

In addition to the IHA renewal process being consistent with all requirements under section 101(a)(5)(D), it is also consistent with Congress' intent for issuance of IHAs to the extent reflected in statements in the legislative history of the MMPA. Through the provision for renewals in the regulations, description of the process and express invitation to comment on specific potential renewals in the Request for Public Comments section of each proposed IHA, the description of the process on NMFS' website, further elaboration on the process through responses to comments such as these, posting of substantive documents on the agency's website, and provision of 30 or 45 days for public review and comment on all proposed initial IHAs and Renewals respectively, NMFS has ensured that the public is "invited and encouraged to participate fully in the agency's decision-making process", as Congress intended.

Comment 2: Oceana stated that NMFS must utilize the best available science, and suggested that NMFS has not done so, specifically referencing information regarding the North Atlantic right whale such as updated population estimates, habitat usage in the

survey area, and seasonality information. Oceana specifically asserted that NMFS is not using the best available science with regards to the North Atlantic right whale population estimate and state that NMFS should be using the estimate of 336 individuals presented in the recent North Atlantic Right Whale Report Card (<https://www.narwc.org/report-cards.html>).

Response: While NMFS agrees that the best available science should be used for assessing North Atlantic right whale abundance estimates, we disagree that the North Atlantic Right Whale Report Card (*i.e.*, Pettis *et al.* (2022)) study represents the most recent and best available estimate for North Atlantic right whale abundance. Rather the revised abundance estimate (368; 95 percent with a confidence interval of 356-378) published by Pace (2021) (and subsequently included in the 2021 draft Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports>)), which was used in the proposed IHA, provides the most recent and best available estimate, and introduced improvements to NMFS' right whale abundance model. Specifically, Pace (2021) looked at a different way of characterizing annual estimates of age-specific survival. NMFS considered all relevant information regarding North Atlantic right whale, including the information cited by the commenters. However, NMFS relies on the SAR. Recently (after publication of the notice of proposed IHA), NMFS updated its species web page to recognize the population estimate for North Atlantic right whales is now below 350 animals (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>). We anticipate that this information will be presented in the draft 2022 SAR. We note that this change in abundance estimate would not change the estimated take of North Atlantic right whales or authorized take numbers, nor affect our ability to make the required findings under the MMPA for Dominion Energy's survey activities.

NMFS further notes that the commenters seem to be conflating the phrase “best available data” with “the most recent data.” The MMPA specifies that the “best available data” must be used, which does not always mean the most recent. As is NMFS' prerogative, we referenced the best available NARW abundance estimate of 368 from the draft 2021 SARs as NMFS' determination of the best available data that we relied on in our analysis. The Pace (2021) results strengthened the case for a change in mean survival rates after 2010-2011, but did not significantly change other current estimates (population size, number of new animals, adult female survival) derived from the model. Furthermore, NMFS notes that the SARs are peer reviewed by other scientific review groups prior to being finalized and published and that the North Atlantic Right Whale Report Card (Pettis *et al.*, 2022) does not undertake this process.

NMFS considered the best available science regarding both recent habitat usage patterns for the study area and up-to-date seasonality information in the notice of the proposed IHA, including consideration of existing BIAs and densities provided by Roberts *et al.* (2021). While the commenter has suggested that NMFS consider best available information for recent habitat usage patterns and seasonality, it has not offered any additional information which it suggests should be considered best available information in place of what NMFS considered in its notice of proposed IHA (87 FR 19864; April 6, 2022).

Lastly, as we stated in the notice of proposed IHA (87 FR 19864; April 6, 2022), any impacts to marine mammals are expected to be temporary and minor and, given the relative size of the survey area compared to the overall migratory route leading to foraging habitat (which is not affected by the specified activity). Comparatively, the survey area is extremely small (approximately 4,000 km²) compared to the size of the NARW migratory BIA (269,448 km²). Because of this, and in context of the minor, low-

level nature of the impacts expected to result from the planned survey, such impacts are not expected to result in disruption to biologically important behaviors.

Comment 3: Oceana noted that chronic stressors are an emerging concern for NARW conservation and recovery, and stated that chronic stress may result in energetic effects for North Atlantic right whales. Oceana suggested that NMFS has not fully considered both the use of the area and the effects of both acute and chronic stressors on the health and fitness of North Atlantic right whales, as disturbance responses in North Atlantic right whales could lead to chronic stress or habitat displacement, leading to an overall decline in their health and fitness.

Response: NMFS agrees with Oceana that both acute and chronic stressors are of concern for North Atlantic right whale conservation and recovery. We recognize that acute stress from acoustic exposure is one potential impact of these surveys, and that chronic stress can have fitness, reproductive, *etc.* impacts at the population-level scale. NMFS has carefully reviewed the best available scientific information in assessing impacts to marine mammals, and recognizes that the surveys have the potential to impact marine mammals through behavioral effects, stress responses, and auditory masking. However, NMFS does not expect that the generally short-term, intermittent, and transitory marine site characterization survey activities planned by Dominion Energy will create conditions of acute or chronic acoustic exposure leading to long-term physiological stress responses in marine mammals. NMFS has also prescribed a robust suite of mitigation measures, including extended distance shutdowns for North Atlantic right whale, that are expected to further reduce the duration and intensity of acoustic exposure, while limiting the potential severity of any possible behavioral disruption. The potential for chronic stress was evaluated in making the determinations presented in NMFS' negligible impact analyses. Because North Atlantic right whales generally use this location in a transitory manner, specifically for migration, any potential impacts from

these surveys are lessened for other behaviors due to the brief periods where exposure is possible. In context of these expected low-level impacts, which are not expected to meaningfully affect important behavior, we also refer again to the large size of the migratory corridor compared with the survey area (the overlap between the BIA and the proposed survey area will cover approximately 4,000 km² of the 269,448 km² BIA). Thus, the transitory nature of North Atlantic right whales at this location means it is unlikely for any exposure to cause chronic effects, as Dominion Energy's planned survey area and ensonified zones are much smaller than the overall migratory corridor. As such, NMFS does not expect acute or cumulative stress to be a detrimental factor to North Atlantic right whales from Dominion Energy's described survey activities.

Comment 4: Oceana asserted that NMFS must fully consider the discrete effects of each activity and the cumulative effects of the suite of approved, proposed and potential activities on marine mammals and North Atlantic right whales in particular and ensure that the cumulative effects are not excessive before issuing or renewing an IHA. In a related comment, the SELC stated that in proceeding with this IHA and all incidental take authorizations for future offshore wind energy development off the East Coast, NMFS should analyze the cumulative risk to North Atlantic right whales and other marine mammal species posed by these multiple projects and leasing phases, including as it relates to development of mitigation measures.

Response: Neither the MMPA nor NMFS' codified implementing regulations call for consideration of other unrelated activities and their impacts on populations. The preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989) states in response to comments that the impacts from other past and ongoing anthropogenic activities are to be incorporated into the negligible impact analysis via their impacts on the baseline. Consistent with that direction, NMFS has factored into its negligible impact analysis the impacts of other past and ongoing anthropogenic activities via their impacts

on the baseline, *e.g.*, as reflected in the density/distribution and status of the species, population size and growth rate, and other relevant stressors. The 1989 final rule for the MMPA implementing regulations also addressed public comments regarding cumulative effects from future, unrelated activities. There NMFS stated that such effects are not considered in making findings under section 101(a)(5) concerning negligible impact. In this case, this IHA, as well as other IHAs currently in effect or proposed within the specified geographic region, are appropriately considered an unrelated activity relative to the others. The IHAs are unrelated in the sense that they are discrete actions under section 101(a)(5)(D), issued to discrete applicants.

Section 101(a)(5)(D) of the MMPA requires NMFS to make a determination that the take incidental to a “specified activity” will have a negligible impact on the affected species or stocks of marine mammals. NMFS' implementing regulations require applicants to include in their request a detailed description of the specified activity or class of activities that can be expected to result in incidental taking of marine mammals. 50 CFR 216.104(a)(1). Thus, the “specified activity” for which incidental take coverage is being sought under section 101(a)(5)(D) is generally defined and described by the applicant. Here, Dominion Energy was the applicant for the IHA, and we are responding to the specified activity as described in that application (and making the necessary findings on that basis).

Through the response to public comments in the 1989 implementing regulations, NMFS also indicated (1) that we would consider cumulative effects that are reasonably foreseeable when preparing a NEPA analysis, and (2) that reasonably foreseeable cumulative effects would also be considered under section 7 of the Endangered Species Act (ESA) for ESA-listed species, as appropriate. Accordingly, NMFS has written Environmental Assessments (EA) that addressed cumulative impacts related to substantially similar activities, in similar locations, *e.g.*, the 2019 Avangrid EA for survey

activities offshore North Carolina and Virginia; the 2017 Ocean Wind, LLC EA for site characterization surveys off New Jersey; and the 2018 Deepwater Wind EA for survey activities offshore Delaware, Massachusetts, and Rhode Island. Cumulative impacts regarding issuance of IHAs for site characterization survey activities such as those planned by Dominion Energy have been adequately addressed under NEPA in prior environmental analyses that support NMFS' determination that this action is appropriately categorically excluded from further NEPA analysis. NMFS independently evaluated the use of a categorical exclusion (CE) for issuance of Dominion Energy's IHA, which included consideration of extraordinary circumstances.

Separately, the cumulative effects of substantially similar activities in the northwest Atlantic Ocean have been analyzed in the past under section 7 of the ESA when NMFS has engaged in formal intra-agency consultation, such as the 2013 programmatic Biological Opinion for BOEM Lease and Site Assessment Rhode Island, Massachusetts, New York, and New Jersey Wind Energy Areas (<https://repository.library.noaa.gov/view/noaa/29291>). Analyzed activities include those for which NMFS issued previous IHAs (82 FR 31562; July 7, 2017, 85 FR 21198; April 16, 2020 and 86 FR 26465; May 10, 2021), which are similar to those planned by Dominion Energy under this current IHA request. This Biological Opinion determined that NMFS' issuance of IHAs for site characterization survey activities associated with leasing, individually *and* cumulatively, are not likely to adversely affect listed marine mammals. NMFS notes, that while issuance of this IHA is covered under a different consultation, this BiOp remains valid.

Comment 5: The SELC recommends that NMFS reinitiate its consultation under the ESA, stating that it relies on outdated scientific information about the North Atlantic right whale and fails to include mitigation measures that meet the ESA's requirements. It

says that NMFS should instead require in the Final IHA the measures found in Attachment 5 of its comment letter.

Response: NMFS disagrees with SELC's assertion that reinitiation of its ESA section 7 consultation is warranted, as none of the reinitiation triggers listed in NMFS' 2021 programmatic consultation have been met. Regarding the mitigation measures included in the 2021 programmatic consultation, NMFS Greater Atlantic Regional Fisheries Office (GARFO) has determined that activities which were considered in its 2021 programmatic consultation are not likely to adversely affect ESA-listed marine mammals, provided that the required Project Design Criteria (PDC) are implemented. This IHA requires Dominion Energy to abide by the relevant PDCs. Please see the response to Comment 6 and other relevant comments regarding the appropriateness of the measures in Attachment 5 to SELC's comment letter.

Comment 6: The SELC recommends that NMFS require the mitigation measures described in Attachment 5 of its letter in the Final IHA. NMFS has summarized the remaining recommendations from Attachment 5 here. Please refer to Attachment 5 to SELC's letter for the full recommended measures. SELC recommends that NMFS: (1) Prohibit site assessment and site characterization activities during times of highest risk. (2) Require diel restrictions on site assessment and characterization activities. (3) Require the clearance zone and exclusion zone distances stated in Attachment 5 prior to activities known to injure or harass large whales. (4) Require shutdown of activities if a large whale is detected visually or acoustically. (5) Require robust monitoring protocols during pre-clearance and when site assessment and characterization activities are underway. (6) Require mandatory vessel speed restrictions. (7) Implement other vessel-related measures. (8) Require underwater noise reduction to the fullest extent feasible. (9) Require mandatory reporting of all North Atlantic right whale and other large whale detections.

Response: Responses below refer to the corresponding number in the comment.

(1) Given the very minor degree to which North Atlantic right whales are anticipated to be impacted by this activity (see the **Estimated Take and Negligible Impact Analysis and Determination** sections for additional detail), it is not appropriate to prohibit survey activities during certain times. However, as described in the **Mitigation** section of this notice, the IHA does include mitigation measures related to vessel transit that are required during certain times when North Atlantic right whales are anticipated to occur in the project area in higher numbers. Further, the IHA requires that members of the monitoring team consult NMFS North Atlantic right whale reporting system and Whale Alert, as able, for the presence of North Atlantic right whales throughout survey operations, and for the establishment of a DMA. If NMFS should establish a DMA in the survey area during the survey, vessels must abide by speed restrictions in the DMA. Please also see NMFS' response to Comment 14.

(2) Please see NMFS' response to Comment 8.

(3) Please see NMFS' response to Comment 16.

(4) Please see NMFS' response to Comment 18.

(5) Regarding the recommendation to conduct acoustic monitoring, please refer to Comment 17. Further, as also recommended by the commenter, PSOs stationed on a survey vessel must be able to view the entire exclusion or clearance zone, and monitoring must begin at least 30 minutes prior to the commencement or re-activation after a shutdown. NMFS requires that visual monitoring must continue until 30 minutes after use of the specified acoustic source ceases. However, NMFS disagrees with the commenter's recommendation to require at least 4 PSOs (rotating two on duty, two off duty). Rather, the IHA requires a minimum of one PSO on duty, per source vessel, during daylight hours and two PSOs must be on duty, per source vessel, during nighttime hours, and expects that these PSOs will be able to sufficiently monitor the zones. NMFS

disagrees with the commenter that a 1,000 m clearance zone for North Atlantic right whales and other large whale species is appropriate. Please see NMFS' response to Comment 16 for additional explanation.

(6) Please see NMFS' response to Comment 10 that describes why it has not required a 10-knot speed restriction at all times. Further, Dominion Energy has not developed a peer-reviewed "Adaptive Plan" that is proven to be equally or more effective than a 10-knot speed restriction, nor does NMFS find such a plan to be warranted, given that the factors described in Comment 10 in support of the vessel speed restriction requirements included in the IHA.

(7) The IHA states that visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish marine mammals from other phenomena and 2) broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammals. While this requirement does not include "all personnel working offshore" as recommended by the commenter, it includes all relevant personnel who may be responsible for vessel strike avoidance.

Regarding vessel separation zones, NMFS requires a 500 m separation distance for ESA-listed whales (North Atlantic right whale and fin whale), which aligns with the commenter's recommendation for North Atlantic right whale, and is more conservative than the commenter's recommendation (100 m) for fin whales. For all other large whales, the final IHA requires a vessel separation distance of 100 m, as also recommended by the commenter and as was included in the proposed IHA. As needed, vessels must take action to maintain these separation distances. During nighttime observations, PSOs will use thermal imaging devices. Regarding the recommendation for crew transport vessels to use thermal imaging devices, Dominion Energy's survey

plans do not require additional vessels for crew transport, and therefore, this recommendation has not been included in the IHA.

(8) Please see NMFS' response to Comment 7.

(9) Please see NMFS' response to Comment 15.

Comment 7: Oceana states that NMFS must make an assessment of which activities, technologies and strategies are truly necessary to achieve site characterization to inform development of the offshore wind projects and which are not critical, asserting that NMFS should prescribe the appropriate survey techniques. In general, Oceana and the SELC stated that NMFS must require that all IHA applicants minimize the impacts of underwater noise to the fullest extent feasible, including through the use of best available technology and methods to minimize sound levels from geophysical surveys such as through the use of technically and commercially feasible and effective noise reduction and attenuation measures. SELC states that for example, project proponents should select and operate sub-bottom profiling systems at power settings that achieve the lowest practicable source level for the objective.

Response: The MMPA requires that an IHA include measures that will effect the least practicable adverse impact on the affected species and stocks and, in practice, NMFS agrees that the IHA should include conditions for the survey activities that will first avoid adverse effects on North Atlantic right whales in and around the survey site, where practicable, and then minimize the effects that cannot be avoided. NMFS has determined that the IHA meets this requirement to effect the least practicable adverse impact. As part of the analysis for all marine site characterization survey IHAs, NMFS evaluated the effects expected as a result of the specified activity, made the necessary findings, and prescribed mitigation requirements sufficient to achieve the least practicable adverse impact on the affected species and stocks of marine mammals. It is

not within NMFS' purview to make judgments regarding what may be appropriate techniques or technologies for an operator's survey objectives.

Comment 8: SELC recommends that NMFS prohibit initiation of site characterization activities within 1.5 hours of civil sunset or in times of low visibility when the visual clearance and exclusion zones cannot be visually monitored.

Response: NMFS disagrees with the commenter that prohibiting initiation of site characterization activities within 1.5 hours of civil sunset or in times of low visibility when the visual clearance and exclusion zones cannot be visually monitored is warranted.

NMFS acknowledges the limitations inherent in detection of marine mammals at night and in times of low visibility. However, no injury is expected to result even in the absence of mitigation, given the characteristics of the sources planned for use (supported by the very small estimated Level A harassment zones; *i.e.*, <54 m for all impulsive sources). Regarding Level B harassment, any potential impacts will be limited to short-term behavioral responses, as described in the *Potential Effects of Specified Activities on Marine Mammals and Their Habitat* section of the notice of proposed IHA (87 FR 19864; April 6, 2022) and the **Negligible Impact Analysis and Determination** section of this notice. NMFS considers impacts from this category of survey operations to be near *de minimis*, with the potential for Level A harassment for any species to be discountable and the severity of Level B harassment (and, therefore, the impacts of the take event on the affected individual), if any, to be low. Commenters provide no evidence to the contrary. NMFS is also requiring Dominion Energy to employ two PSOs during nighttime hours and Dominion Energy must supply at least one thermal (infrared) imaging device suited for the marine environment. Given these factors, NMFS has determined that more restrictive mitigation requirements are not warranted.

Restricting surveys in the manner suggested by the commenters may reduce marine mammal exposures by some degree in the short term, but would not result in any

significant reduction in either intensity or duration of noise exposure. Vessels would also potentially be on the water for an extended time introducing additional noise into the marine environment. The restrictions recommended by the commenters could result in the surveys spending increased time on the water, which may result in greater overall exposure to sound for marine mammals; thus the commenters have not demonstrated that such a requirement would result in a net benefit. Furthermore, restricting the ability of the applicant to begin surveys within 1.5 hours of civil sunset would have the potential to result in lengthy shutdowns of the survey equipment, which could result in the applicant failing to collect the data they have determined is necessary and, subsequently, the need to conduct additional surveys in the future. This would result in significantly increased costs incurred by the applicant. Thus, the restriction suggested by the commenters would not be practicable for the applicant to implement. In consideration of the likely effects of the activity on marine mammals absent mitigation, potential unintended consequences of the measures as proposed by the commenters, and practicability of the recommended measures for the applicant, NMFS has determined that restricting operations as recommended is not warranted or practicable in this case.

Comment 9: Oceana suggests that PSOs complement their survey efforts using additional technologies, such as infrared detection devices when in low-light conditions.

Response: NMFS agrees with Oceana regarding this suggestion and a requirement to utilize a thermal (infrared) device during low-light conditions was included in the proposed **Federal Register** Notice. That requirement is included as a requirement of the issued IHA.

Comment 10: Oceana and the SELC recommended that NMFS restrict all vessels of all sizes associated with the proposed survey activities to speeds less than 10 knots (kn) at all times due to the risk of vessel strikes to North Atlantic right whales and other large whales.

Response: While NMFS acknowledges that vessel strikes can result in injury or mortality, we have analyzed the potential for vessel strike resulting from Dominion Energy's activity and have determined that based on the nature of the activity and the required mitigation measures specific to vessel strike avoidance included in the IHA, potential for vessel strike is so low as to be discountable. The required mitigation measures, all of which were included in the proposed IHA and are now required in the final IHA, include: A requirement that all vessel operators comply with 10 kn (18.5 km/hour) or less speed restrictions in any SMA, DMA or Slow Zone while underway, and check daily for information regarding the establishment of mandatory or voluntary vessel strike avoidance areas (SMAs, DMAs, Slow Zones) and information regarding NARW sighting locations; a requirement that all vessels greater than or equal to 19.8 m in overall length operating from November 1 through April 30 operate at speeds of 10 kn (18.5 km/hour) or less; a requirement that all vessel operators reduce vessel speed to 10 kn (18.5 km/hour) or less when any large whale, any mother/calf pairs, pods, or large assemblages of non-delphinid cetaceans are observed near the vessel; a requirement that all survey vessels maintain a separation distance of 500 m or greater from any ESA-listed whales or other unidentified large marine mammals visible at the surface while underway; a requirement that, if underway, vessels must steer a course away from any sighted ESA-listed whale at 10 kn or less until the 500 m minimum separation distance has been established; a requirement that, if an ESA-listed whale is sighted in a vessel's path, or within 500 m of an underway vessel, the underway vessel must reduce speed and shift the engine to neutral; a requirement that all vessels underway must maintain a minimum separation distance of 100 m from all non-ESA-listed baleen whales; and a requirement that all vessels underway must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach

the vessel). We have determined that the vessel strike avoidance measures in the IHA are sufficient to ensure the least practicable adverse impact on species or stocks and their habitat. Furthermore, no documented vessel strikes have occurred for any marine site characterization surveys which were issued IHAs from NMFS during the survey activities themselves or while transiting to and from survey sites.

Comment 11: Oceana suggests that NMFS require vessels maintain a separation distance of at least 500 m from North Atlantic right whales at all times.

Response: NMFS agrees with Oceana regarding this suggestion and a requirement to maintain a separation distance of at least 500 m from North Atlantic right whales at all times was included in the proposed **Federal Register** Notice and was included as a requirement in the issued IHA.

Comment 12: Oceana recommended that the IHA should require all vessels supporting site characterization to be equipped with and using Class A Automatic Identification System (AIS) devices at all times while on the water. Oceana suggested this requirement should apply to all vessels, regardless of size, associated with the survey.

Response: NMFS is generally supportive of the idea that vessels involved with survey activities be equipped with and using Class A Automatic Identification System (devices) at all times while on the water. Indeed, there is a precedent for NMFS requiring such a stipulation for geophysical surveys in the Atlantic Ocean (38 FR 63268, December 7, 2018); however, these activities carried the potential for much more significant impacts than the marine site characterization surveys to be carried out by Dominion Energy, with the potential for both Level A and Level B harassment take. Given the small isopleths and small numbers of take authorized by this IHA, NMFS does not agree that the benefits of requiring AIS on all vessels associated with the survey activities outweighs and warrants the cost and practicability issues associated with this requirement.

Comment 13: Oceana asserts that the IHA must include requirements to hold all vessels associated with site characterization surveys accountable to the IHA requirements, including vessels owned by the developer, contractors, employees, and others regardless of ownership, operator, and contract. They state that exceptions and exemptions will create enforcement uncertainty and incentives to evade regulations through reclassification and redesignation. They recommend that NMFS simplify this by requiring all vessels to abide by the same requirements, regardless of size, ownership, function, contract or other specifics.

Response: NMFS agrees with Oceana and required these measures in the proposed IHA and final IHA. The IHA requires that a copy of the IHA must be in the possession of Dominion Energy, the vessel operators, the lead PSO, and any other relevant designees of Dominion Energy operating under the authority of this IHA. The IHA also states that Dominion Energy must ensure that the vessel operator and other relevant vessel personnel, including the Protected Species Observer (PSO) team, are briefed on all responsibilities, communication procedures, marine mammal monitoring protocols, operational procedures, and IHA requirements prior to the start of survey activity, and when relevant new personnel join the survey operations.

Comment 14: The SELC recommends that NMFS prohibit site characterization activities that have the potential to injure or harass North Atlantic right whales (defined in its letter as sources operating at frequencies between 7 and 35 kHz) from November 1 to April 30.

Response: NMFS appreciates the value of seasonal restrictions under certain circumstances. However, in this case, we have determined seasonal restrictions from April 1 to November 30 are not warranted, given the relatively low density of North Atlantic right whales in the area, the nature of the proposed activities, and the required mitigation measures. As described in response to Comment 16, Dominion Energy is

required to implement clearance and exclusion zones of 500 m for North Atlantic right whales. This 500 m zone exceeds the modeled distance to the largest 160 dB Level B harassment isopleth (141 m during sparker use) by a substantial margin. Further, Level A harassment (auditory injury) is not expected to result even in the absence of mitigation, given the characteristics of the sources planned for use.

Comment 15: Oceana stated that the IHA must include a requirement for all phases of the site characterization to subscribe to the highest level of transparency, including frequent reporting to federal agencies. Oceana and SELC recommend requirements to report all visual and acoustic detections of North Atlantic right whales and any dead, injured, or entangled marine mammals to NMFS or the Coast Guard as soon as possible and no later than the end of the PSO shift. SELC also recommends the Marine Animal Response Team as a potential organization for reporting of entangled or dead North Atlantic right whales or other large whales. Oceana states that to foster stakeholder relationships and allow public engagement and oversight of the permitting, the IHA should require all reports and data to be accessible on a publicly available website. Related, SELC recommends that quarterly reports of PSO sighting data be made publicly available.

Response: NMFS agrees with the need for reporting and indeed, the MMPA calls for IHAs to incorporate reporting requirements. However, NMFS does not concur with the suggestion that Dominion Energy should submit quarterly PSO sightings data reports, and that these reports be made publicly available. As included in the proposed IHA, the final IHA includes requirements for reporting that supports Oceana's recommendations. Dominion Energy is required to submit a monitoring report to NMFS within 90 days after completion of survey activities that fully documents the methods and monitoring protocols, summarizes the data recorded during monitoring. PSO datasheets or raw sightings data must also be provided with the draft and final monitoring report. SELC did

not provide specific examples regarding how making PSO sightings data publicly available on a quarterly basis would inform marine mammal science and protection in any meaningful way on this timescale.

Further, the draft IHA and final IHA stipulate that if a North Atlantic right whale is observed at any time by any survey vessels, during surveys or during vessel transit, Dominion Energy must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System within two hours of occurrence, when practicable, or no later than 24 hours after occurrence. Dominion Energy may also report the sighting to the U.S. Coast Guard. Additionally, Dominion Energy must report any discoveries of injured or dead marine mammals to the Office of Protected Resources, NMFS, and to the New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible. This includes entangled animals. All reports and associated data submitted to NMFS are included on the website for public inspection.

Daily visual and acoustic detections of North Atlantic right whales and other large whale species along the Eastern Seaboard, as well as Slow Zone locations, are publicly available on WhaleMap (<https://whalemap.org/WhaleMap/>). Further, recent acoustic detections of North Atlantic right whales and other large whale species are available to the public on NOAA's Passive Acoustic Cetacean Map website <https://apps-nefsc.fisheries.noaa.gov/pacm/#/narw>. Given the open access to the resources described above, NMFS does not concur that public access to quarterly PSO reports is warranted and we have not included this measure in the authorization.

Comment 16: The SELC recommended that for site characterization activities that have the potential to injure or harass North Atlantic right whales, NMFS require a visual clearance and exclusion zone of at least 1,000 m for North Atlantic right whales and 500 m for all large whale species around each vessel conducting activities with noise levels that could result in injury to or harassment of large whales, and also require an acoustic

clearance and exclusion zone of at least 1,000 m for North Atlantic right whales around each vessel conducting activities with noise levels that could harass North Atlantic right whales. SELC states that if a large whale is detected within the 1000 m clearance zone but the species cannot be identified, it must be assumed to be a North Atlantic right whale. Similarly, Oceana recommended increasing the Exclusion Zone to 1,000m for North Atlantic right whales.

Response: NMFS notes that the 500 m Exclusion Zone for North Atlantic right whales exceeds the modeled distance to the largest 160 dB Level B harassment isopleth (141 m during sparker use) by a substantial margin. Commenters do not provide a compelling rationale for why the Exclusion Zone should be even larger. Given that these surveys are relatively low impact and that, regardless, NMFS has prescribed a North Atlantic right whale Exclusion Zone that is significantly larger (500 m) than the conservatively estimated largest harassment zone (141 m), NMFS has determined that the Exclusion Zone is appropriate. Regarding the clearance zone, the SELC did not provide a compelling reason why the recommended clearance zones are warranted. The IHA already requires a clearance zone of 500 m for ESA-listed marine mammals (which includes all large whales, except humpback and minke whales), which like the Exclusion Zones, are much larger than the Level B harassment zone for all activities (the largest of which is 141 m, as noted above). For all other marine mammals, the 100 m clearance zone is significantly larger than the calculated Level A harassment zones, and it incorporates most or all of the Level B harassment zones, including the largest Level B harassment zone of 141 m. Further, Level A harassment is not expected to result even in the absence of mitigation, given the characteristics of the sources planned for use.

Regarding the use of acoustic monitoring to implement exclusion and clearance zones, NMFS does not anticipate that acoustic monitoring would be effective for a variety of reasons, as described in its response to Comment 17, and therefore has not

required it in this IHA. Please refer to Comment 17 for additional information. As described in the **Mitigation** section, NMFS has determined that the prescribed mitigation requirements are sufficient to effect the least practicable adverse impact on all affected species or stocks.

Comment 17: Oceana recommended that NMFS should require Passive Acoustic Monitoring (PAM) at all times to maximize the probability of detection for North Atlantic right whales. It provided recommendations that NMFS should require PAM at all times, both day and night, to maximize the probability of detection for North Atlantic right whales, as well as other species and stocks. In a related comment, the SELC recommended that applicants use PAM to assist in implementing clearance and exclusion zones for North Atlantic right whales.

Response: The commenters do not explain why they expect that PAM would be effective in detecting vocalizing mysticetes, nor does NMFS agree that this measure is warranted, as it is not expected to be effective for use in detecting the species of concern. It is generally accepted that, even in the absence of additional acoustic sources, using a towed passive acoustic sensor to detect baleen whales (including North Atlantic right whales) is not typically effective because the noise from the vessel, the flow noise, and the cable noise are in the same frequency band and will mask the vast majority of baleen whale calls. Vessels produce low-frequency noise, primarily through propeller cavitation, with main energy in the 5-300 Hertz (Hz) frequency range. Source levels range from about 140 to 195 decibel (dB) re 1 μ Pa (micropascal) at 1 m (NRC, 2003; Hildebrand, 2009), depending on factors such as ship type, load, and speed, and ship hull and propeller design. Studies of vessel noise show that it appears to increase background noise levels in the 71-224 Hz range by 10-13 dB (Hatch *et al.* 2012; McKenna *et al.* 2012; Rolland *et al.* 2012). PAM systems employ hydrophones towed in streamer cables approximately 500 m behind a vessel. Noise from water flow around the cables and from

strumming of the cables themselves is also low frequency and typically masks signals in the same range. Experienced PAM operators participating in a recent workshop (Thode *et al.* 2017) emphasized that a PAM operation could easily report no acoustic encounters, depending on species present, simply because background noise levels rendered any acoustic detection impossible. The same workshop report stated that a typical eight-element array towed 500 m behind a vessel could be expected to detect delphinids, sperm whales, and beaked whales at the required range, but not baleen whales, due to expected background noise levels (including seismic noise, vessel noise, and flow noise).

There are several additional reasons why we do not agree that use of PAM is warranted for 24-hour HRG surveys. While NMFS agrees that PAM can be an important tool for augmenting detection capabilities in certain circumstances, its utility in further reducing impact during HRG survey activities is limited. First, for this activity, the area expected to be ensonified above the Level B harassment threshold is relatively small (a maximum of 141 m); this reflects the fact that, to start with, the source level is comparatively low and the intensity of any resulting impacts would be lower level and, further, it means that inasmuch as PAM will only detect a portion of any animals exposed within a zone, the overall probability of PAM detecting an animal in the harassment zone is low. Together these factors support the limited value of PAM for use in reducing take with smaller zones. PAM is only capable of detecting animals that are actively vocalizing, while many marine mammal species vocalize infrequently or during certain activities, which means that only a subset of the animals within the range of the PAM would be detected (and potentially have reduced impacts). Additionally, localization and range detection can be challenging under certain scenarios. For example, odontocetes are fast moving and often travel in large or dispersed groups which makes localization difficult.

Given that the effects to marine mammals from the types of surveys authorized in this IHA are expected to be limited to low level behavioral harassment even in the absence of mitigation, the limited additional benefit anticipated by adding this detection method (especially for North Atlantic right whales and other low frequency cetaceans, species for which PAM has limited efficacy), and the cost and impracticability of implementing a full-time PAM program, we have determined the current requirements for visual monitoring are sufficient to ensure the least practicable adverse impact on the affected species or stocks and their habitat. NMFS has previously provided discussions on why PAM isn't a required monitoring measure during HRG survey IHAs in past **Federal Register** notices (see 86 FR 21289, April 22, 2021 and 87 FR 13975, March 11, 2022 for examples).

Comment 18: Oceana recommends a shutdown requirement if a North Atlantic right whale or other ESA-listed species is detected in the clearance zone as well as a publicly available explanation of any exemptions as to why the applicant would not be able to shut down in these situations. In a related comment, the SELC recommends that if a North Atlantic right whale or other large whale species is visually or acoustically detected within the relevant clearance zone, site assessment and characterization activities with noise levels that could result in injury or harassment to large whales must not be initiated. SELC further recommends that site assessment and characterization activities with noise levels that could result in injury or harassment to large whales be halted if a North Atlantic right whale or other large whale species is visually detected within the visual exclusion zone or if a North Atlantic right whale is acoustically detected within the acoustic exclusion zone.

Response: NMFS reiterates that use of the planned sources is not expected to have any potential to cause injury of any species, including North Atlantic right whale, even in the absence of mitigation. Consideration of the anticipated effectiveness of the mitigation

measures (*i.e.*, exclusion zones and shutdown measures) discussed below and in the **Mitigation** section of this notice further strengthens the conclusion that injury is not a reasonably anticipated outcome of the survey activity. Nevertheless, there are several shutdown requirements described in the **Federal Register** notice of the proposed IHA (87 FR 19864; April 6, 2022), and which are included in the final IHA, including the stipulation that geophysical survey equipment must be immediately shut down if any marine mammal is observed within or entering the relevant Exclusion Zone while geophysical survey equipment is operational. There is no exemption for the shutdown requirement for NARW and ESA-listed species.

Dominion Energy is required to implement a 30-minute pre-start clearance period prior to the initiation of ramp-up of specified HRG equipment. During this period, clearance zones will be monitored by the PSOs, using the appropriate visual technology. Ramp-up may not be initiated if any marine mammal(s) is within its respective clearance zone. If a marine mammal is observed within an clearance zone during the pre-start clearance period, ramp-up may not begin until the animal(s) has been observed exiting its respective exclusion zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals, and 30 minutes for all other species). If the acoustic source is shut down for reasons other than mitigation (*e.g.*, mechanical difficulty) for less than 30 minutes, it may be activated again without ramp-up if PSOs have maintained constant observation and no detections of any marine mammal have occurred within the respective exclusion zones.

NMFS does not require acoustic monitoring for the reasons stated in our response to Comment 17.

Comment 19: Oceana recommended that when HRG surveys are allowed to resume after a shutdown event, the surveys should be required to use a ramp-up procedure to encourage any nearby marine life to leave the area.

Response: NMFS agrees with this recommendation and included in the **Federal Register** notice of the proposed IHA (87 FR 19864; April 6, 2022) and this final IHA a stipulation that when technically feasible, survey equipment must be ramped up at the start or restart of survey activities. Ramp-up must begin with the power of the smallest acoustic equipment at its lowest practical power output appropriate for the survey. When technically feasible the power must then be gradually turned up and other acoustic sources added in a way such that the source level would increase gradually. NMFS notes that ramp-up is not required for short periods where acoustic sources were shut down (*i.e.*, less than 30 minutes) if PSOs have maintained constant visual observation and no detections of marine mammals occurred within the applicable Exclusion Zones.

Changes from the Proposed IHA to Final IHA

Since publication of the Notice of proposed IHA, NMFS has acknowledged that the population estimate of North Atlantic right whales is now under 350 animals (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>). However, as discussed in our response to Comment 2 above, NMFS has determined that this change in abundance estimate would not change the estimated take of North Atlantic right whales or authorized take numbers, nor affect our ability to make the required findings under the MMPA for Dominion Energy's survey activities. The status and trends of the NARW population remain unchanged.

NMFS considered all public comments received and determined that no changes to the final IHA were necessary due to these recommendations. However, in section 6 of the IHA (*Reporting Requirements*) NMFS removed reference to an acoustic monitoring report which was inadvertently included in the proposed IHA, as an acoustic monitoring report is not required. Additionally, in the same section, NMFS added a GARFO email address to which the draft and final reports must also be sent.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS' website (<https://www.fisheries.noaa.gov/find-species>).

Table 2 lists all species or stocks for which take is expected and authorized for this action, and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2021). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Atlantic and Gulf of Mexico SARs. All values presented in Table 2 are the most recent available at the time of publication and are available in the 2020 SARs (Hayes *et al.* 2021) and draft 2021

SARs (available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>).

Table 2-- Marine Mammals Likely To Occur in the Project Area That May Be Affected by Dominion Energy's Activity

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³
Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)						
Family Balaenidae						
North Atlantic right whale	<i>Eubalaena glacialis</i>	Western North Atlantic	E, D, Y	368 (0, 364, 2019)	0.7	7.7
Family Balaenopteridae (rorquals)						
Fin whale	<i>Balaenoptera physalus</i>	Western North Atlantic	E, D, Y	6,802 (0.24, 5,573, 2016)	11	1.8
Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine	-, -, Y	1,396 (0, 1,380, 2016)	22	12.15
Minke whale	<i>Balaenoptera acutorostrata</i>	Canadian East Coast	-, -, N	21,968 (0.31, 17,002, 2016)	170	10.6
Sei whale	<i>Balaenoptera borealis</i>	Nova Scotia	E, D, Y	6,292 (1.02, 3,098, 2016)	6.2	0.8
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Physeteridae						
Sperm whale	<i>Physeter macrocephalus</i>	North Atlantic	E, D, Y	4,349 (0.28, 3,451, 2016)	3.9	0
Family Delphinidae						
Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>	Western North Atlantic	-, -, N	93,233 (0.71, 54,443, 2016)	544	27
Bottlenose dolphin	<i>Tursiops spp.</i>	Western North Atlantic Offshore	-, -, N	62,851 ^b (0.23, 51,914 ^b , 2016)	519	28

		Southern Migratory Coastal	-, -, Y	3,751 (0.6, 2,353, 2016)	23	0-18.3
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Western North Atlantic	-, -, Y	28,924 (0.24, 23,637, 2016)	236	136
Long-finned pilot whale	<i>Globicephala melas</i>	Western North Atlantic	-, -, N	39,215 (0.3, 30,627, 2016)	306	29
Risso's dolphin	<i>Grampus griseus</i>	Western North Atlantic	-, -, N	35,215 (0.19, 30,051, 2016)	301	34
Common dolphin	<i>Delphinus delphis</i>	Western North Atlantic	-, -, N	172,974 (0.21, 145,216, 2016)	1452	390
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Western North Atlantic	-, -, N	39,921 (0.27, 32,032, 2016)	320	0
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	Gulf of Maine/ Bay of Fundy	-, -, N	95,543 (0.31, 74,034, 2016)	851	164
Order Carnivora—Superfamily Pinnipedia						
Family Phocidae (earless seals)						
Gray seal ⁴	<i>Halichoerus grypus</i>	Western North Atlantic	-, -, N	27,300 (0.22, 22,785, 2016)	1389	4453
Harbor seal	<i>Phoca vitulina</i>	Western North Atlantic	-, -, N	61,336 (0.08, 57,637, 2018)	1729	339

¹ ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

² NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.

³ These values, found in NMFS' SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, vessel strike).

⁴ NMFS' stock abundance estimate (and associated PBR value) applies to U.S. population only. Total stock abundance (including animals in Canada) is approximately 451,431. The annual M/SI value given is for the total stock.

A detailed description of the of the species likely to be affected by Dominion

Energy's activities, including information regarding population trends, threats, and local

occurrence, was provided in the **Federal Register** notice for the proposed IHA (87 FR 19864; April 6, 2022); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

Table 3-- Marine Mammal Hearing Groups (NMFS, 2018)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i>)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite (<i>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall <i>et al.</i> 2007) and PW pinniped (approximation).	

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.* 2006; Kastelein *et al.* 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. 16 marine mammal species (14 cetacean and two phocid pinniped species) have the reasonable potential to co-occur with the planned survey activities. Please refer to Table 2. Of the cetacean species that may be present, five are classified as low-frequency cetaceans (*i.e.*, all mysticete species), eight are classified as mid-frequency cetaceans (*i.e.*, all delphinids and the sperm whale), and one is classified as high-frequency cetaceans (*i.e.*, harbor porpoise).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from the deployed acoustic sources have the potential to result in behavioral harassment of marine mammals in the vicinity of the study area. The **Federal Register** notice for the proposed IHA (87 FR 19864; April 6, 2022) included a discussion of the effects of anthropogenic noise on marine mammals

and their habitat, therefore that information is not repeated here; please refer to the **Federal Register** notice (87 FR 19864; April 6, 2022) for that information.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes are by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to HRG sources. Based primarily on the characteristics of the signals produced by the acoustic sources planned for use, Level A harassment is neither anticipated (even absent mitigation) nor authorized. Consideration of the anticipated effectiveness of the mitigation measures (*i.e.*, exclusion zones and shutdown measures) discussed in detail below in the **Mitigation** section, further strengthens the conclusion that Level A harassment is not a reasonably anticipated outcome of the survey activity. As described previously, no serious injury or mortality is anticipated authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the

area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the take estimate.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment– Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.* 2007, Ellison *et al.* 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 160 dB re 1 μ Pa (rms) for the impulsive sources (*i.e.*, boomers, sparkers) evaluated here for Dominion Energy’s activity.

Level A harassment- NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). For more information, see NMFS' 2018 Technical Guidance, which may be accessed at www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.

Dominion Energy's planned survey includes the use of impulsive (*i.e.*, sparkers and boomers) sources. However, as discussed above, NMFS has concluded that Level A harassment is not a reasonably likely outcome for marine mammals exposed to noise through use of the sources planned for use here, and the potential for Level A harassment is not evaluated further in this document. Please see Dominion Energy's application for details of a quantitative exposure analysis exercise, *i.e.*, calculated Level A harassment isopleths and estimated Level A harassment exposures. Maximum estimated Level A harassment isopleths were less than 6 m for all sources and hearing groups with the exception of an estimated 54 m zone calculated for high-frequency cetaceans during use of the Applied Acoustics S-Boom Boomer, (see Table 1 for source characteristics). Dominion Energy did not request authorization of take by Level A harassment, and no take by Level A harassment is authorized here by NMFS.

Ensonified Area

NMFS has developed a user-friendly methodology for estimating the extent of the Level B harassment isopleths associated with relevant HRG survey equipment (NMFS, 2020). This methodology incorporates frequency and directionality to refine estimated ensonified zones. For acoustic sources that operate with different beamwidths, the

maximum beamwidth was used, and the lowest frequency of the source was used when calculating the frequency-dependent absorption coefficient (Table 1).

NMFS considers the data provided by Crocker and Fratantonio (2016) to represent the best available information on source levels associated with HRG equipment and, therefore, recommends that source levels provided by Crocker and Fratantonio (2016) be incorporated in the method described above to estimate isopleth distances to harassment thresholds. In cases when the source level for a specific type of HRG equipment is not provided in Crocker and Fratantonio (2016), NMFS recommends that either the source levels provided by the manufacturer be used, or, in instances where source levels provided by the manufacturer are unavailable or unreliable, a proxy from Crocker and Fratantonio (2016) be used instead. Table 1 shows the HRG equipment types that may be used during the planned surveys and the source levels associated with those HRG equipment types.

Results of modeling using the methodology described above indicated that, of the HRG survey equipment planned for use by Dominion Energy that has the potential to result in Level B harassment of marine mammals, the Geo Marine Dual 400 Sparker 800J will produce the largest Level B harassment isopleth (141 m; see Table 6-3 of Dominion Energy's application). The Applied Acoustics S-Boom (Triple Plate Boomer 1000J) will produce a Level B harassment isopleth of 22 m. Although Dominion Energy does not expect to use the Geo Marine Dual 400 Sparker 800J source on all planned survey days, it assumes, for purposes of analysis, that the sparker will be used on all survey days. This is a conservative approach, as the actual sources used on individual survey days may produce smaller harassment distances.

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

Habitat-based density models produced by the Duke University Marine Geospatial Ecology Laboratory and the Marine-life Data and Analysis Team, based on the best available marine mammal data from 1992-2019 obtained in a collaboration between Duke University, the Northeast Regional Planning Body, the University of North Carolina Wilmington, the Virginia Aquarium and Marine Science Center, and NOAA (Roberts *et al.* 2016a; Curtice *et al.* 2018), represent the best available information regarding marine mammal densities in the survey area. More recently, these data have been updated with new modeling results and include density estimates for pinnipeds (Roberts *et al.* 2016, 2017, 2018, 2020, 2021).

The density data presented by Roberts *et al.* (2016b, 2017, 2018, 2020, 2021) incorporates aerial and shipboard line-transect survey data from NMFS and other organizations and incorporates data from eight physiographic and 16 dynamic oceanographic and biological covariates, and controls for the influence of sea state, group size, availability bias, and perception bias on the probability of making a sighting. These density models were originally developed for all cetacean taxa in the U.S. Atlantic (Roberts *et al.* 2016). In subsequent years, certain models have been updated based on additional data as well as certain methodological improvements. More information is available online at <https://seamap.env.duke.edu/models/Duke/EC/>. Marine mammal density estimates in the survey area (animals/km²) were obtained using the most recent model results for all taxa (Roberts *et al.* 2016, 2017, 2018, 2020, 2021), with the exception of the North Atlantic right whale (discussed below). The updated models incorporate additional sighting data, including sightings from NOAA's Atlantic Marine Assessment Program for Protected Species (AMAPPS) surveys.

For the exposure analysis, the density data from Roberts *et al.* (2016, 2017, 2018, 2020, 2021) were mapped using a geographic information system (GIS). For the full survey area, Dominion Energy averaged the densities of each species as reported by

Roberts *et al.* (2016, 2017, 2018, 2020, 2021) by season; thus, a density was calculated for each species for spring, summer, fall and winter. To be conservative, the greatest seasonal density calculated for each species was then carried forward in the exposure analysis. The largest estimated seasonal densities (animals per km²) of all marine mammal species that may be taken by the proposed survey, for all survey areas, is shown in Table 4, below. Below, we discuss how densities were assumed to apply to specific species for which the Roberts *et al.* (2016b, 2017, 2018, 2020, 2021) models provide results at the genus or guild level. Additional data regarding average group sizes from survey effort in the region was considered to ensure take estimates are adequate to account for anticipated real-world encounter rates.

For bottlenose dolphin densities, Roberts *et al.* (2016b, 2017, 2018) does not differentiate by stock. Given the southern coastal migratory stock's propensity to occur in waters shallower than the 25 m (82 ft) isobath north of Cape Hatteras (Reeves *et al.* 2002; Hayes *et al.* 2018), the project's offshore export cable route corridor segment was roughly divided along the 25 m (82 ft) isobath. Roughly 90 percent of the cable corridor is 25 m (82 ft) or less in depth. The Lease Area is mostly located within depths exceeding 25 m (82 ft), where the southern coastal migratory stock is unlikely to occur. Roughly 25 percent of the Lease Area survey segment is 25 m (82 ft) or less in depth. Therefore, to account for the potential for mixed stocks within the Project's offshore export cable route corridor, 90 percent of the estimated take calculation in that area is assumed to be of individuals in the southern coastal migratory stock and the remaining applied to the Western North Atlantic offshore stock within the Project's offshore export cable route corridor survey area. Within the Lease Area, 25 percent of the estimated take calculation is assumed to be of individuals from the southern coastal migratory stock and the remaining applied to the Western North Atlantic offshore stock.

The seasonality, feeding preferences, and habitat use by gray seals often overlaps with that of harbor seals in the survey areas. The density models produced by Roberts *et al.* (2016b, 2017, 2018) do not differentiate between gray seals and harbor seals. Rather, the model provides one density estimate for “seals.” Therefore, for the density values reported in the IHA application, Dominion Energy assumed that half of the seals were gray seals, and the other half harbor seals.

Dominion Energy used model Version 10 (Roberts *et al.* 2021) to estimate the density of North Atlantic right whales. While two more recent versions (Version 11 and Version 11.1) of the model are available, the updates in these versions do not affect the densities in the project area. The update in Version 11 pertains to Cape Cod Bay only, which is outside of the CVOW project area. Density surfaces in Version 11.1 did not change from Version 11; rather Version 11.1 includes uncertainty surfaces as well as density surfaces.

Table 4-- Maximum seasonal densities of marine mammals in the Lease Area and OECC (animals per 100 km²).

Species	Lease Area/ OECC
North Atlantic right whale	0.111
Humpback whale	0.060
Fin whale	0.184
Sei whale	0.001
Minke whale	0.047
Sperm whale	0.003
Pilot whale	0.029
Bottlenose dolphin (Offshore)	10.614
Bottlenose dolphin (Southern Migratory Coastal)	
Common dolphin	2.163
Atlantic white-sided dolphin	0.600

Atlantic spotted dolphin	0.311
Risso's dolphin	0.008
Harbor porpoise	0.794
Gray seal	0.514
Harbor seal	

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate. In order to estimate the number of marine mammals predicted to be exposed to sound levels that would result in harassment, radial distances to predicted isopleths corresponding to harassment thresholds are calculated, as described above. Those distances are then used to calculate the area(s) around the HRG survey equipment predicted to be ensonified to sound levels that exceed harassment thresholds. The area estimated to be ensonified to relevant thresholds in a single day (zone of influence (ZOI)) is then calculated, based on areas predicted to be ensonified around the HRG survey equipment (*i.e.*, 141 m) and the estimated trackline distance traveled per day by the survey vessel (*i.e.*, 58 km). Based on the maximum estimated distance to the Level B harassment threshold of 141 m (Geo Marine Dual 400 Sparker 800J) and the maximum estimated daily track line distance of 58 km, the ZOI is estimated to be 16.4 km² during Dominion Energy's planned HRG surveys. As described above, this is a conservative estimate as it assumes the HRG source that results in the greatest distance to the Level B harassment isopleth will be operated at all times during all vessel days.

$$\text{ZOI} = (\text{Distance/day} \times 2r) + \pi r^2$$

Where r is the linear distance from the source to the harassment isopleth.

Potential daily Level B harassment takes are estimated by multiplying the average annual marine mammal densities (animals/km²), as described above, by the ZOI.

Estimated numbers of each species taken over the duration of the authorization are

calculated by multiplying the potential daily Level B harassment takes by the total number of vessel days. The product is then rounded, to generate an estimate of the total number of instances of harassment expected for each species over the duration of the survey. A summary of this method is illustrated in the following formula:

$$\text{Estimated Take} = D \times \text{ZOI} \times \text{vessel days}$$

Where D = average species density (animals/km²), ZOI = maximum daily ensonified area to relevant threshold, and vessel days = 244.

Table 5 shows the authorized take by Level B harassment.

Table 5--Authorized Incidental Take of Marine Mammals and Authorized Takes as a Percentage of Population

Species	Estimated Takes by Level B Harassment	Authorized Takes by Level B Harassment ^a	Abundance	Authorized Takes as a Percent of Stock
North Atlantic right whale	4.4	4	368	1.4
Humpback whale	2.4	2	1,396	<1
Fin whale	7.4	7	6,802	<1
Sei whale	0.04	0	6,292	0
Minke whale	1.9	2	21,968	<1
Sperm whale	0.0	0	4,349	0
Short-finned pilot whale	1.2	20	28,924	<1
Long-finned pilot whale			39,215	<1
Bottlenose dolphin (Western North Atlantic Offshore stock)	279.2	279	62,851	<1
Bottlenose dolphin (Southern Migratory Coastal stock)	147.1	147	3,751	3.9
Common dolphin	86.6	4,880	172,974	2.8
Atlantic white-sided dolphin	24.1	25	93,233	<1
Atlantic spotted dolphin	12.5	4,880	39,921	12.4
Risso's dolphin	0.3	25	35,215	<1
Harbor porpoise	31.8	32	95,543	<1
Gray seal	12	12	451,431	<1
Harbor seal	12	12	61,336	<1

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The authorized take listed in Table 5 generally reflects the estimated take calculation described above (Estimated Take = $D \times ZOI \times \text{vessel days}$). Further, take estimates for pilot whale and Risso's dolphin have been modified to reflect group size estimates, and take estimates for Atlantic spotted dolphin and common dolphin have been modified to reflect previous monitoring in the CVOW project area, as described further below.

Roberts *et al.* (2017) provides a density for all pilot whales that does not differentiate between short-finned and long-finned pilot whales, both of which could be in the project area. However, the take estimate for pilot whales was further adjusted to account for group size. Dominion Energy estimates that a group of 20 pilot whales (Reeves *et al.* 2002) may be taken by Level B harassment during the surveys. While the take calculation described above estimates no takes of Risso's dolphin, Dominion Energy also conservatively estimates that a group of 25 Risso's dolphins (Reeves *et al.* 2002) may be taken by Level B harassment during the surveys. NMFS concurs with these estimates, and has authorized 20 takes by Level B harassment of pilot whales and 25 takes by Level B harassment of Risso's dolphin.

Previous monitoring in the CVOW project area (Dominion Energy, 2021; 86 FR 21298; April 22, 2021 and 85 FR 81879; December 17, 2020) indicates that the calculated take of Atlantic spotted dolphin and common dolphin is too low. Given previous monitoring, Dominion Energy conservatively estimated that two pods of common dolphins, each averaging 10 individuals, may be taken by Level B harassment on each vessel day (2 pods x 10 individuals x 244 vessel days = 4,880 takes by Level B harassment of common dolphin). Dominion Energy conservatively estimates that one pod of Atlantic spotted dolphins, averaging 20 individuals, may be taken by Level B harassment on each vessel day (1 pod x 20 individuals x 244 vessel days = 4,880 takes by

Level B harassment of Atlantic spotted dolphin). While these estimates are likely conservative, NMFS concurs, and has authorized 4,880 takes by Level B harassment of both common dolphin and Atlantic spotted dolphin.

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness

activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Mitigation for Marine Mammals and their Habitat

NMFS requires that the following mitigation measures be implemented during Dominion Energy's planned marine site characterization surveys. Pursuant to section 7 of the ESA, Dominion Energy is also required to adhere to relevant Project Design Criteria (PDC) of the NMFS' GARFO programmatic consultation (specifically PDCs 4, 5, and 7) regarding geophysical surveys along the U.S. Atlantic coast

(<https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic#offshore-wind-site-assessment-and-site-characterization-activities-programmatic-consultation>).

Marine Mammal Exclusion Zones and Harassment Zones

Marine mammal exclusion zones will be established around the HRG survey equipment and monitored by protected species observers (PSOs):

- 500 m exclusion zone for North Atlantic right whales during use of specified acoustic sources (sparkers, boomers, and non-parametric sub-bottom profilers).
- 100 m exclusion zone for all other marine mammals, with certain exceptions specified below, during operation of impulsive acoustic sources (boomer and/or sparker).

If a marine mammal is detected approaching or entering the exclusion zone during the HRG survey, the vessel operator will adhere to the shutdown procedures described below to minimize noise impacts on the animals. These stated requirements will be included in the site-specific training to be provided to the survey team.

Pre-Start Clearance

Marine mammal clearance zones will be established around the HRG survey equipment and monitored by protected species observers (PSOs):

- 500 m for all ESA-listed marine mammals; and
- 100 m for all other marine mammals.

Dominion Energy will implement a 30-minute pre-start clearance period prior to the initiation of ramp-up of specified HRG equipment (see exception to this requirement in the *Shutdown Procedures* section below) During this period, clearance zones will be monitored by the PSOs, using the appropriate visual technology. Ramp-up may not be initiated if any marine mammal(s) is within its respective clearance zone. If a marine mammal is observed within an clearance zone during the pre-start clearance period, ramp-up may not begin until the animal(s) has been observed exiting its respective exclusion zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals, and 30 minutes for all other species).

Ramp-Up of Survey Equipment

A ramp-up procedure, involving a gradual increase in source level output, is required at all times as part of the activation of the acoustic source when technically feasible. The ramp-up procedure will be used at the beginning of HRG survey activities in order to provide additional protection to marine mammals near the survey area by allowing them to vacate the area prior to the commencement of survey equipment operation at full power. Operators should ramp up sources to half power for 5 minutes and then proceed to full power.

Ramp-up activities will be delayed if a marine mammal(s) enters its respective exclusion zone. Ramp-up will continue if the animal has been observed exiting its respective exclusion zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals and 30 minutes for all other species).

Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of marine mammals in the 30 minutes

prior to beginning ramp-up. Acoustic source activation may only occur at night where operational planning cannot reasonably avoid such circumstances.

Shutdown Procedures

An immediate shutdown of the impulsive HRG survey equipment is required if a marine mammal is sighted entering or within its respective exclusion zone. The vessel operator must comply immediately with any call for shutdown by the Lead PSO. Any disagreement between the Lead PSO and vessel operator should be discussed only after shutdown has occurred. Subsequent restart of the survey equipment can be initiated if the animal has been observed exiting its respective exclusion zone or until an additional time period has elapsed (*i.e.*, 15 minutes for harbor porpoise, 30 minutes for all other species).

If a species for which authorization has not been granted, or, a species for which authorization has been granted but the authorized number of takes have been met, approaches or is observed within the Level B harassment zone, shutdown will occur.

If the acoustic source is shut down for reasons other than mitigation (*e.g.*, mechanical difficulty) for less than 30 minutes, it may be activated again without ramp-up if PSOs have maintained constant observation and no detections of any marine mammal have occurred within the respective exclusion zones. If the acoustic source is shut down for a period longer than 30 minutes, then pre-clearance and ramp-up procedures will be initiated as described in the previous section.

The shutdown requirement will be waived for pinnipeds and for small delphinids of the following genera: *Delphinus*, *Lagenorhynchus*, *Stenella*, and *Tursiops*.

Specifically, if a delphinid from the specified genera or a pinniped is visually detected approaching the vessel (*i.e.*, to bow ride) or towed equipment, shutdown is not required. Furthermore, if there is uncertainty regarding identification of a marine mammal species (*i.e.*, whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), PSOs must use best professional judgement in making the

decision to call for a shutdown. Additionally, shutdown is required if a delphinid or pinniped detected in the exclusion zone and belongs to a genus other than those specified.

Shutdown, pre-start clearance, and ramp-up procedures are not required during HRG survey operations using only non-impulsive sources (*e.g.*, echosounders).

Vessel Strike Avoidance

Dominion Energy must adhere to the following measures except in the case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

- Vessel operators and crews must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any protected species. A visual observer aboard the vessel must monitor a vessel strike avoidance zone based on the appropriate separation distance around the vessel (distances stated below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish protected species from other phenomena and 2) broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammal;

- Members of the monitoring team will consult NMFS North Atlantic right whale reporting system and Whale Alert, as able, for the presence of North Atlantic right whales throughout survey operations, and for the establishment of a DMA. If NMFS should establish a DMA in the survey area during the survey, the vessels will abide by speed restrictions in the DMA;

- All survey vessels, regardless of size, must observe a 10-knot (18.5 km/hr) speed restriction in specific areas designated by NMFS for the protection of North Atlantic right whales from vessel strikes including seasonal management areas (SMAs) and dynamic management areas (DMAs) when in effect;

- All vessels greater than or equal to 19.8 m in overall length operating from November 1 through April 30 will operate at speeds of 10 knots (18.5 km/hr) or less at all times;

- All vessels must reduce their speed to 10 knots (18.5 km/hr) or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel;

- All vessels must maintain a minimum separation distance of 500 m from right whales and other ESA-listed large whales;

- If a whale is observed but cannot be confirmed as a species other than a right whale or other ESA-listed large whale, the vessel operator must assume that it is a right whale and take appropriate action;

- All vessels must maintain a minimum separation distance of 100 m from non-ESA listed whales;

- All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel); and

- When marine mammals are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area). If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine

to neutral, not engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

Project-specific training will be conducted for all vessel crew prior to the start of a survey and during any changes in crew such that all survey personnel are fully aware and understand the mitigation, monitoring, and reporting requirements. Prior to implementation with vessel crews, the training program will be provided to NMFS for review and approval. Confirmation of the training and understanding of the requirements will be documented on a training course log sheet. Signing the log sheet will certify that the crew member understands and will comply with the necessary requirements throughout the survey activities.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has determined that the required mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the survey area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

Monitoring Measures

Visual monitoring will be performed by qualified, NMFS-approved PSOs, the resumes of whom will be provided to NMFS for review and approval prior to the start of survey activities. Dominion Energy will employ independent, dedicated, trained PSOs, meaning that the PSOs must 1) be employed by a third-party observer provider, 2) have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements (including brief alerts regarding maritime hazards), and 3) have successfully completed an approved PSO training course appropriate for their designated task. On a case-by-case basis, non-independent observers may be approved by NMFS for

limited, specific duties in support of approved, independent PSOs on smaller vessels with limited crew capacity operating in nearshore waters. Section 5 of the draft IHA contains further details regarding PSO approval.

The PSOs will be responsible for monitoring the waters surrounding each survey vessel to the farthest extent permitted by sighting conditions, including exclusion zones, during all HRG survey operations. PSOs will visually monitor and identify marine mammals, including those approaching or entering the established exclusion zones during survey activities. It will be the responsibility of the Lead PSO on duty to communicate the presence of marine mammals as well as to communicate the action(s) that are necessary to ensure mitigation and monitoring requirements are implemented as appropriate.

During all HRG survey operations (*e.g.*, any day on which use of an HRG source is planned to occur), a minimum of one PSO must be on duty during daylight operations on each survey vessel, conducting visual observations at all times on all active survey vessels during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset). Two PSOs will be on watch during nighttime operations. The PSO(s) will ensure 360° visual coverage around the vessel from the most appropriate observation posts and will conduct visual observations using binoculars and/or night vision goggles and the naked eye while free from distractions and in a consistent, systematic, and diligent manner. PSOs may be on watch for a maximum of 4 consecutive hours followed by a break of at least 2 hours between watches and may conduct a maximum of 12 hours of observation per 24-hr period. In cases where multiple vessels are surveying concurrently, any observations of marine mammals will be communicated to PSOs on all nearby survey vessels.

PSOs must be equipped with binoculars and have the ability to estimate distance and bearing to detect marine mammals, particularly in proximity to exclusion zones.

Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine mammals. During nighttime operations, night-vision goggles with thermal clip-ons and infrared technology will be used. Position data will be recorded using hand-held or vessel GPS units for each sighting.

During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), to the maximum extent practicable, PSOs will also conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the active acoustic sources. Any observations of marine mammals by crew members aboard any vessel associated with the survey will be relayed to the PSO team. Data on all PSO observations will be recorded based on standard PSO collection requirements. This will include dates, times, and locations of survey operations; dates and times of observations, location and weather; details of marine mammal sightings (*e.g.*, species, numbers, behavior); and details of any observed marine mammal behavior that occurs (*e.g.*, noted behavioral disturbances).

Reporting Measures

Within 90 days after completion of survey activities or expiration of this IHA, whichever comes sooner, a draft technical report will be provided to NMFS that fully documents the methods and monitoring protocols, summarizes the data recorded during monitoring, summarizes the number of marine mammals observed during survey activities (by species, when known), summarizes the mitigation actions taken during surveys (including what type of mitigation and the species and number of animals that prompted the mitigation action, when known), and provides an interpretation of the results and effectiveness of all mitigation and monitoring. A final report must be submitted within 30 days following resolution of any comments on the draft report. All draft and final marine mammal monitoring reports must be submitted to

PR.ITP.MonitoringReports@noaa.gov, *ITP.Davis@noaa.gov*, and *nmfs.gar.incidental-take@noaa.gov*. The report must contain at minimum, the following:

- PSO names and affiliations;
- Dates of departures and returns to port with port name;
- Dates and times (Greenwich Mean Time) of survey effort and times

corresponding with PSO effort;

- Vessel location (latitude/longitude) when survey effort begins and ends;

vessel location at beginning and end of visual PSO duty shifts;

- Vessel heading and speed at beginning and end of visual PSO duty shifts

and upon any line change;

- Environmental conditions while on visual survey (at beginning and end of

PSO shift and whenever conditions change significantly), including wind speed and

direction, Beaufort sea state, Beaufort wind force, swell height, weather conditions, cloud cover, sun glare, and overall visibility to the horizon;

- Factors that may be contributing to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions); and

- Survey activity information, such as type of survey equipment in

operation, acoustic source power output while in operation, and any other notes of

significance (*i.e.*, pre-start clearance survey, ramp-up, shutdown, end of operations, *etc.*).

If a marine mammal is sighted, the following information should be recorded:

- Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);

- PSO who sighted the animal;

- Time of sighting;

- Vessel location at time of sighting;

- Water depth;
- Direction of vessel's travel (compass direction);
- Direction of animal's travel relative to the vessel;
- Pace of the animal;
- Estimated distance to the animal and its heading relative to vessel at initial sighting;
- Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;
- Estimated number of animals (high/low/best);
- Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, *etc.*);
- Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
- Detailed behavior observations (*e.g.*, number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
- Animal's closest point of approach and/or closest distance from the center point of the acoustic source;
- Platform activity at time of sighting (*e.g.*, deploying, recovering, testing, data acquisition, other); and
- Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up, speed or course alteration, *etc.*) and time and location of the action.

If a North Atlantic right whale is observed at any time by PSOs or personnel on

any project vessels, during surveys or during vessel transit, Dominion Energy must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System: (866) 755-6622. North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16.

In the event that Dominion Energy personnel discover an injured or dead marine mammal, Dominion Energy will report the incident to the NMFS Office of Protected Resources (OPR) and the NMFS New England/Mid-Atlantic Stranding Coordinator as soon as feasible. The report would include the following information:

1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
2. Species identification (if known) or description of the animal(s) involved;
3. Condition of the animal(s) (including carcass condition if the animal is dead);
4. Observed behaviors of the animal(s), if alive;
5. If available, photographs or video footage of the animal(s); and
6. General circumstances under which the animal was discovered.

In the unanticipated event of a vessel strike of a marine mammal by any vessel involved in the activities covered by the IHA, Dominion Energy would report the incident to the NMFS OPR and the NMFS New England/Mid-Atlantic Stranding Coordinator as soon as feasible. The report would include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Species identification (if known) or description of the animal(s) involved;
- Vessel's speed during and leading up to the incident;
- Vessel's course/heading and what operations were being conducted (if applicable);
- Status of all sound sources in use;

- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
- Estimated size and length of animal that was struck;
- Description of the behavior of the marine mammal immediately preceding and following the strike;
- If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
- To the extent practicable, photographs or video footage of the animal(s).

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’ implementing regulations (54 FR 40338;

September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, our analysis applies to all the species listed in Table 2, given that NMFS expects the anticipated effects of the planned survey to be similar in nature.

Where there are meaningful differences between species or stocks - as is the case of the North Atlantic right whale - they are included as separate subsections below. NMFS does not anticipate that serious injury or mortality would occur as a result from HRG surveys, even in the absence of mitigation, and no serious injury or mortality is authorized. As discussed in the **Potential Effects of Specified Activities on Marine Mammals and their Habitat** section, non-auditory physical effects and vessel strike are not expected to occur. NMFS expects that all potential takes will be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area or decreased foraging (if such activity was occurring), reactions that are considered to be of low severity and with no lasting biological consequences (*e.g.*, Southall *et al.* 2007). Even repeated Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in viability for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. As described above, Level A harassment is not expected to occur given the nature of the operations, the estimated size of the Level A harassment zones, and the required shutdown zones for certain activities.

In addition to being temporary, the maximum expected harassment zone around a survey vessel is 141 m. Although this distance is assumed for all survey activity in estimating take numbers evaluated and authorized here, in reality, the Geo Marine Dual 400 Sparker will likely not be used across the entire 24-hour period and across all 244

vessel days. The other acoustic sources operating below 200 kHz that Dominion Energy has included in their application produce Level B harassment zones below 22 m.

Therefore, the ensonified area surrounding each vessel is relatively small compared to the overall distribution of the animals in the area and their use of the habitat. Feeding behavior is not likely to be significantly impacted as prey species are mobile and are broadly distributed throughout the survey area; therefore, marine mammals that may be temporarily displaced during survey activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Because of the temporary nature of the disturbance and the availability of similar habitat and resources in the surrounding area, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

There are no rookeries, mating or calving grounds known to be biologically important to marine mammals within the planned survey area and there are no feeding areas known to be biologically important to marine mammals within the planned survey area. There is no designated critical habitat for any ESA-listed marine mammals in the planned survey area.

North Atlantic Right Whales

The status of the North Atlantic right whale population is of heightened concern and, therefore, merits additional analysis. As noted previously, elevated North Atlantic right whale mortalities began in June 2017, and there is an active UME. Overall, preliminary findings support human interactions, specifically vessel strikes and entanglements, as the cause of death for the majority of right whales. As noted previously, the planned survey area overlaps a migratory corridor BIA for North Atlantic right whales. Due to the fact that the impacts of the planned survey are expected to be of low severity (as described in the **Potential Effects of Specified Activities on Marine**

Mammals and their Habitat), the survey activities are temporary, and the spatial extent of sound produced by the survey will be very small relative to the spatial extent of the available migratory habitat in the BIA (the overlap between the BIA and the survey area covers approximately 4,000 km² of the 269,448 km² BIA), right whale migration is not expected to be impacted by the survey. Given the relatively small size of the ensonified area, it is unlikely that prey availability would be adversely affected by HRG survey operations. Required vessel strike avoidance measures will also decrease risk of vessel strike during migration; no vessel strike is expected to occur during Dominion Energy's planned activities. The 500-m shutdown zone for right whales is conservative, considering the Level B harassment isopleth for the most impactful acoustic source (*i.e.*, sparker) is estimated to be 141 m, and thereby minimizes the potential for behavioral harassment of this species.

As noted previously, Level A harassment is not expected due to the small PTS zones associated with HRG equipment types planned for use. The authorization of take by Level B harassment of North Atlantic right whale is not expected to exacerbate or compound upon the ongoing UME. The limited authorized takes of North Atlantic right whale by Level B harassment are expected to be of a short duration, and given the number of estimated takes, repeated exposures of the same individual are not expected. Further, given the relatively small size of the ensonified area during Dominion Energy's planned activities, it is unlikely that North Atlantic right whale prey availability would be adversely affected. Accordingly, NMFS does not anticipate North Atlantic right whales takes that may result from Dominion Energy's planned activities will impact annual rates of recruitment or survival of any individuals. Thus, any takes that occur will not result in population level impacts.

Other Marine Mammal Species with Active UMEs

As noted previously, there are several active UMEs occurring in the vicinity of Dominion Energy's planned survey area. Elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida since January 2016. Of the cases examined, approximately half had evidence of human interaction (vessel strike or entanglement). The UME does not yet provide cause for concern regarding population-level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or DPS) remains stable at approximately 12,000 individuals.

Beginning in January 2017, elevated minke whale strandings have occurred along the Atlantic coast from Maine through South Carolina, with highest numbers in Massachusetts, Maine, and New York. This event does not provide cause for concern regarding population level impacts, as the likely population abundance is greater than 20,000 whales.

The required mitigation measures are expected to reduce the number and/or severity of authorized takes for all species listed in Table 2, including those with active UMEs, to the level of least practicable adverse impact. In particular, they would provide animals the opportunity to move away from the sound source throughout the survey area before HRG survey equipment reaches full energy, thus preventing them from being exposed to sound levels that have the potential to cause injury (Level A harassment) or more severe Level B harassment. As discussed previously, take by Level A harassment (injury) is considered unlikely, even absent mitigation, based on the characteristics of the signals produced by the acoustic sources planned for use, and is not authorized. Implementation of required mitigation will further reduce this potential.

NMFS expects that takes will be in the form of short-term Level B behavioral harassment by way of brief startling reactions and/or temporary vacating of the area, or decreased foraging (if such activity was occurring)—reactions that (at the scale and intensity anticipated here) are considered to be of low severity, with no lasting biological

consequences. Since both the sources and marine mammals are mobile, animals will only be exposed briefly to a small ensonified area that might result in take. Additionally, required mitigation measures will further reduce exposure to sound that could result in more severe behavioral harassment.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No mortality or serious injury is anticipated or authorized;
- No Level A harassment (PTS) is anticipated, even in the absence of mitigation measures, or authorized;
- Foraging success is not likely to be impacted as effects on species that serve as prey species for marine mammals from the survey are expected to be minimal;
- The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the survey area during the planned survey to avoid exposure to sounds from the activity;
- Take is anticipated to be by Level B behavioral harassment only consisting of brief startling reactions and/or temporary avoidance of the survey area;
- While the survey area is within areas noted as a migratory BIA for North Atlantic right whales, the activities will occur in such a comparatively small area such that any avoidance of the survey area due to activities would not affect migration. In addition, mitigation measures require shutdown at 500 m (almost four times the size of the Level B harassment isopleth (141 m), which minimizes the effects of the take on the species; and
- The required mitigation measures, including effective visual monitoring, and shutdowns are expected to minimize potential impacts to marine mammals.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the required monitoring and mitigation measures, NMFS finds that the total marine mammal take from the planned activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

NMFS has authorized incidental take (by Level B harassment only) of 14 marine mammal species (with 15 managed stocks). The total amount of authorized takes relative to the best available population abundance is less than 33 percent for all stocks (Table 5).

Based on the analysis contained herein of the planned activity (including the required mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking

of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must evaluate our proposed action (*i.e.*, the issuance of an IHA) and alternatives with respect to potential impacts on the human environment. This action is consistent with categories of activities identified in Categorical Exclusion B4 of the Companion Manual for NAO 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that this action qualifies to be categorically excluded from further NEPA review.

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS Office of Protected Resources (OPR) consults internally whenever we propose to authorize take for endangered or threatened species.

NMFS is authorizing take of North Atlantic right whale and fin whales, which are listed under the ESA. On June 29, 2021 (revised September 2021), GARFO completed an informal programmatic consultation on the effects of certain site assessment and site characterization activities to be carried out to support the siting of offshore wind energy development projects off the U.S. Atlantic coast. Part of the activities considered in the

consultation are geophysical surveys such as those proposed by Dominion Energy and for which we have authorize take. GARFO concluded site assessment surveys are not likely to adversely affect endangered species or adversely modify or destroy critical habitat. NMFS has determined issuance of the IHA is covered under the programmatic consultation; therefore, ESA consultation has been satisfied.

Authorization

As a result of these determinations, NMFS has issued an IHA to Dominion Energy authorizing take, by Level B harassment, incidental to conducting marine site characterization surveys off of Virginia for a period of one year, that includes the previously explained mitigation, monitoring, and reporting requirements.

Dated: May 31, 2022.

Catherine Marzin,

Acting Director, Office of Protected Resources,

National Marine Fisheries Service.